annual volumes published. He paid attention to several widely different groups of plants, while he was keenly interested in the problems concerning hybridisation.

Mr. Rolfe was elected an associate of the Linnean Society in 1885. He received many distinctions. In February last he was awarded the Victoria medal of the Royal Horticultural Society and the gold medal of the Veitch Memorial Trust Fund. Mr. Rolfe's work was well done. He was esteemed by all who knew him, and his many amiable qualities won for him the affectionate regard of his numerous colleagues and friends.

PROF. ISAO IJIMA, who died of apoplexy in Tokyo on March 14, was born in 1861, and received his training as a zoologist in Tokyo from Prof. C. O. Whitman; and his first papers, on the leech Nephelis, were contributed to the *Quarterly Journal of Microscopical Science* and *Zoologischer Anzeiger* (1882). Continuing the study of various worms, he was attracted to the laboratory of Leuckart; but after his return to Japan, about 1890, he began a long series of researches on the beautiful Hexactinellid sponges of the neighbouring seas. In a series of papers published in the Journal of the College of Science of Tokyo University, Ijima threw light on the structure and development of many of these siliceous sponges. On the death of Mitsukuri, Ijima became senior professor of zoology at Tokyo University. Though administrative duties checked the flow of papers, he had prepared the manuscript of a large monograph on the Hexactinellidæ, which, it is to be hoped, will soon see the light. Ijima was a good shot, a keen fisherman, an all-round naturalist, and a charming companion. He leaves many friends and a succession of distinguished pupils.

THE death is announced, in *Science* of April 8, of DR. JOHN IRIDELLE DILLARD HINDS, at the age of seventy-three years. Dr. Hinds was one of the founders of the American Chemical Society, and for forty years acted as professor of chemistry, first in Cumberland University and later in the University of Nashville and Peabody College. At the time of his death he was chemist to the Geological Survey of Tennessee.

Notes.

THE first of the two annual soirées of the Royal Society will be held at Burlington House on Wednesday, May 11.

IN consequence of industrial disturbances, the Congress of Radiology, fixed for April 14 and following days, has been postponed until the spring of 1922.

IT is announced that the King has approved the conferment of the honour of knighthood on Dr. James Craig, King's professor of medicine at Trinity College, Dublin, and president of the Royal College of Physicians of Ireland.

THE *British Medical Journal* for April 16 states that the Government of Panama has assigned the sum of 10,000,000 dollars for the erection in Panama of the proposed Institute for Tropical Diseases in memory of the late Surg.-Gen. Gorgas.

NOTICE is given by the Ministry of Agriculture and Fisheries that applications for grants in aid of scientific investigations bearing on agriculture will be received until May 15 next. Copies of form A.230/I., giving particulars of the conditions under which the grants will be made, are obtainable from the Secretary of the Ministry of Agriculture and Fisheries, Whitehall Place, S.W.1.

IT is announced in *Science* for March 25 that the American Engineering Council has joined with the National Association of Manufacturers, the American Patent Law Association, the American Chemical Society, and the National Research Council in a movement to bring about reforms in the United States Patent Office. A committee on patents has been appointed which is representative of mechanical, electrical, civil, mining, and metallurgical engineers in the United States in order to deal with this subject.

THE subjects for discussion at the seventh International Fisheries Congress, which will be held at Santander, in Spain, on July 31–August 8, are:—(1) Oceanography, physical, biological, and meteorological; (2) technique of sea- and river-fishing; (3) fish, oyster, and mussel culture; (4) the industrial exploitation of the produce of the fisheries; (5) social problems; and (6) statistics and legislation. Papers for consideration ought to be sent to the Secretary-General of the Congress (*via* the Ministry of Agriculture and Fisheries) before June 1. The British Fisheries Society (which expects to be in being very shortly) is opening a subscription for the purchase of medals (six at 45*s.* each and six at 21*s.* each), and it is proposed that these should be awarded by the society for the two best papers in each of the above sections of the congress. The society invites British writers to submit papers.

THE Faraday Society is organising a general discussion on physico-chemical problems relating to the soil to be held during the afternoon and evening of May 31 in the rooms of the Chemical Society, London, and presided over by Sir Daniel Hall, Chief Scientific Adviser to the Board of Agriculture. The discussion will be opened by Dr. E. J. Russell, director of the Rothamsted Experimental Station, who will give a general survey of the subject. A series of papers dealing with soil moisture, organic constituents, adsorption, and colloidal phenomena will then be put forward as a basis for discussion. It is expected that among those present will be Prof. Sven Oden, of the University of Upsala. Further particulars of the meeting may be obtained from the Secretary of the Faraday Society, 10 Essex Street, London, W.C.2.

THREE Chadwick public lectures on "Fevers in England: Their Prevention and Control" will be delivered by Dr. William Hunter at the lecture-room of the Medical Society of London, 11 Chandos Street, Cavendish Square, W.1, on May 5, 12, and 19 at 5.15 p.m. The lectures are intended as a review of the progress made in the science of public health during the past century, special attention being given to the Public Health Acts (1848–1918). The first lecture will deal with sanitary reforms achieved during the period 1800–70; in the second the effects of the establishment of fever hospitals and the recognition of the value of antiseptic measures and protective inoculation during the period 1871–90 will be discussed; and in the third lecture, covering the period 1891–1920, the effects of compulsory notification and isolation will be described and some account given of the present position of medical knowledge on the subjects of typhus and relapsing fevers, measles, whooping cough, and influenza. Admission to the lectures is free in all cases.

THE presentation of the first award of the Kelvin medal will be made by the Right Hon. A. J. Balfour in the hall of the Institution of Civil Engineers to Dr. W. C. Unwin on Wednesday, May 4, at 4 o'clock. The medal was founded in 1914, principally by British and American engineers, to commemorate the achievements of Lord Kelvin in those branches of science which are especially applicable to engineering. The award is dealt with by a committee of the presidents of the representative British engineering institutions after their consideration of recommendations received from similar bodies in all parts of the world, and, in accordance with the terms of the trust, it is made to the person whom the committee finds to be most worthy to receive this recognition of pre-eminence in the branches of engineering with which Lord Kelvin's scientific work and researches were identified.

THE council of the Institution of Mining and Metallurgy presented the thirtieth annual report (for the year ending December 31, 1920) at the annual general meeting held on April 21. During the year a joint conference was held with representatives of the Institution of Mining Engineers with the view of promoting co-operation between the two bodies. The recommendations of the conference were adopted, with the result that the Institution of Mining Engineers will in future be accommodated in the house of the Institution of Mining and Metallurgy; each body will retain its identity, but they will be administered by one secretariat. The important question of the registration of engineers came into prominence during the year, when the council of the Institution of Civil Engineers decided to promote a Bill in Parliament for the registration of civil engineers. While accepting the principle of registration, the council of the Institution of Mining and Metallurgy deprecated the control over all branches of the profession of engineering which this Bill would confer, and, in company with other bodies representing various branches of the profession, protested to the council of the Institution of Civil Engineers. The latter has since decided not to proceed with the Bill, but to apply for a supplemental Royal Charter to authorise the use of "Chartered Civil Engineer" by its members. Two awards have been made by the Institution of Mining and Metallurgy during the past year; the institution's gold medal has been awarded to Sir Thomas Kirke Rose, in recognition of his services in the advancement of metallurgical science, with special reference to the metallurgy of gold, and the New Consolidated Gold Fields, Ltd., gold medal and premium of 40 guineas to Mr. H. Livingstone Sulman, for his paper "A Contribution to the Study of Flotation." Mr. F. W. Harbord has been elected president for the year 1921–22 in succession to Mr. F. Merricks.

THE Peabody Museum, Harvard University, issues in vol. viii., No. 1, of its Proceedings an account of the excavation of an Indian village site and cemetery near Madisonville, Ohio, which has furnished much interesting archæological material. In all, 1236 bodies were exhumed, probably belonging to the Shawnee tribe, and occupied prior to 1672. Three forms of burial—horizontal, contracted, and in a sitting posture—were observed; they indicate a grouping resulting from numerous simultaneous interments or a species of division into family lots. There was no consistent rule of orientation, but the south, east, and south-east were generally selected. Full details of the skeletons, with the objects associated with them, are given.

IN the Journal of the Royal Anthropological Institute (vol. l., January–June, 1920) Mr. J. H. Hutton gives a curious account of a form of lycanthropy current in Assam among the Naga tribes. All these people regard the ultimate ancestry of man and the tiger or leopard as very intimately associated. Man and the tiger are still regarded as brothers, and if an Angami kills a tiger he says, "The gods have killed a tiger in the jungle," never "I have killed a tiger"; while the village priest proclaims a day of abstention from work "on account of the death of an elder brother." Though the Angamis suppose that lycanthropy exists and can be acquired, they do not indulge in it themselves, but believe in the existence of a village far to the east peopled by lycanthropists—a belief perhaps based on the claim of the Changs to possess the faculty of taking tiger or other animal forms. The soul usually enters the leopard during sleep and returns to the human body with daylight, but it may remain in the leopard for several days at a time, in which case the human body, though conscious, is lethargic. The soul, however, is more or less conscious of its experiences in leopard form, and can to some extent remember and relate them when it has returned to its human consciousness.

WE have received Bulletin No. 2 of the Bureau of Bio-Technology (January, 1921), a newly established quarterly publication issued from the biological department of Messrs. Murphy and Son, of Leeds. Although it runs to only 25 pages, it contains two articles of considerable interest. One concerns the destruction of stored malt by the agency of a Dermestid beetle, *Trogoderma khapra*, Arrow. This species has been recorded as an occasional rarity, but there appears to be no previous instance of its occurring in sufficient numbers to cause appreciable damage. There seems to be no doubt that the presence of this beetle is due to infected shipments of barley from Karachi and other Indian ports. The second article refers to Nematode worms in relation to leather manufacture, these organisms being found in large numbers during the process of removing wool from skins by means of "sweating." It is undoubtedly a healthy sign that a business house deems it worth while to issue a periodical of this nature. Apart from any function by way of advertisement, it should serve as an outlet for the publication of research work carried out in the firm's own laboratories. It is well printed and the illustrations adequately fulfil the purpose intended.

THE evolution of the lachrymal bone in vertebrate animals is discussed at great length and illustrated with nearly 200 beautiful figures by Dr. W. K. Gregory in one of his studies of comparative myology and osteology (Bull. Amer. Mus. Nat. Hist., vol. xlii., No. 4). The bone can now be traced back by almost every gradation to a dermal plate in the circumorbital ring of certain Devonian fishes. In the earliest amphibians this and the other bones of the circumorbital series become better differentiated, and in early reptiles the anterior part of the lachrymal is covered by the progressive upgrowth of the maxilla. In mammals the lachrymal and jugal are the only two parts of the primitive circumorbital series remaining, and the lachrymal is reduced as the upgrowth of the maxilla increases. There can be no doubt that the lachrymal of mammals is homologous with the bone similarly named in reptiles. The anatomy of the lachrymal and malar fossæ in the skull of horses and other hoofed mammals is also discussed by Dr. Gregory (No. 5). He concludes that the large lachrymal fossa of the extinct horse was occupied neither by a facial gland nor by muscle, but by the end of a greatly enlarged nasal diverticulum. The malar fossa seems to have lodged part of one of the lip-muscles.

THE structure and uses of balsa wood are fully described by Mr. R. C. Carpenter in Trans. Amer. Soc. Civil Engineers (vol. lxxxi., No. 125, 1917). This wood is the lightest known, a cubic foot weighing only 7·3 lb., yet its strength is fully half that of spruce. It has been used for rafts, floats, and life-preservers, and is now much employed, since it is a non-conductor of heat, for ice-boxes and refrigerators. Frozen butter sent from Virginia in a small balsa box arrived after an eight days' journey in summer weather at Los Angeles still hard and frozen. It is possible that containers made of balsa wood will eventually displace thermos flasks. Untreated balsa wood is of little value for most purposes because it soon rots and decays in consequence of its liability to absorb water. This has been overcome by R. A. Marr's process of waterproofing timber with a bath of which the chief ingredient is paraffin. Balsa wood is the product of various species of Ochroma, trees allied to Bombax, which have lately been elucidated by Prof. W. W. Rowlee in Journ. Washington Acad. Sciences (vol. ix., p. 157, 1919). The best known is *Ochroma lagopus*, Swartz, which occurs wild in Cuba and Jamaica. Eight other species, including seven new to science, occur in the tropical forests of America, ranging from Guatemala and Honduras to Ecuador and Bolivia. *Ochroma limonensis*, Rowlee, is extraordinarily rapid in growth; a seedling in Costa Rica was 16 in. in diameter at the end of three years, and this individual is said to be in no way exceptional.

THE Geological Survey of Western Australia has published a series of memoirs intended especially to aid prospectors and miners. In addition to sections dealing with the occurrence, distribution, and production of the various minerals, there are a number of chapters designed to teach the prospector the rudiments of geology, mineralogy, and petrology so far as these are of use in discovering or developing the mineral resources of the country.

THE Imperial Mineral Resources Bureau has issued a small volume of statistical and technical information upon zinc covering the period 1913–19. It contains an excellent review of the zinc industry at the close of 1919 by Mr. Gilbert Rigg. Unfortunately, sufficient care has not been bestowed upon the all-important statistical portion; thus for 1913 the production of zinc-ore in the United Kingdom is given as 17,294 tons, capable of producing 5823 tons of spelter, while the quantity of imported ore is given as 64,670 tons. The production of smelted zinc is given as 66,000 tons, so that the quantity of imported ore given above must be assumed to have yielded about 60,000 tons of spelter, which is clearly quite impossible. Surely, too, an official British publication should not use the term "long" tons when "statute" tons are meant.

THE Meteorological Department of the Government of India has issued its report on the administration in 1919–20. Observations in connection with the upper air have been developed on behalf of the aviators who are from time to time crossing India. Storm warnings for stations in the Bay of Bengal and in the Arabian Sea are said to have been carried out successfully. It is, however, admitted that the warning of the storm which caused much damage to life and property in eastern Bengal on the night of September 24, 1919, was inadequate. Inland stations were not communicated with until early evening, and were then informed that a "slight to moderate storm" was expected. Special arrangements have been made to avoid the repetition of a similar mishap. The storm, which was tracked from September 22–25, developed rapidly as it approached, and crossed the Bengal coast as a cyclone about noon on September 24. It reached Dacca at about 2.30 a.m. on September 25, and finally broke up on that day in the Assam hills. At the centre the deficiency of pressure was about 1¼ in., and the calm area at least 15 miles in diameter. The total loss of life is estimated at 3500. The value of property destroyed was probably greater than in any storm in Bengal for the last two hundred years, but the destruction of human life was probably greater in the Bakarganj cyclone of 1876. An additional terror was caused by a vivid red glow appearing in the sky during the period of the lull. Details are given of the several storms which occurred during the year. Flood warnings are issued, and the results are said to be very satisfactory. Rainfall data were received for publication from nearly three thousand stations for the year.

In the January issue of the *Journal de Physique* Prof. G. Bruhat, of the University of Lille, deals with some conclusions with regard to the variation of the specific heats of substances at low temperatures, in partial accordance with experiment, to which Nernst's theory of the solid or liquid state at absolute zero leads. The values of the specific heats of the same substance in different physical states at the lowest temperatures for which observations are available cannot be held to confirm the theory that the entropy of each modification tends to the same value at absolute zero. All that can be said at present is that Nernst's hypothesis is not contradicted by observation. Prof. Bruhat also points out that while the difference between the energies of two modifications of the same substance may be expanded in a series in ascending powers of temperature differences near the points of observation, there is no justification for continuing this expansion down to absolute zero.

Mr. L. W. Austen, of the U.S. Naval Radio Research Laboratory, contributes an interesting paper to the Journal of the Washington Academy of Sciences for March on the wave-front angle in radio-telegraphy. He gives the results of experiments made with a pivoted, straight-wire, antenna system mounted at the top of a 55-ft. wooden pole in such a way that it is capable of rotation about a vertical and a horizontal axis. The results show that for wave-lengths greater than 10,000 metres the deviation of the wave-front from the vertical cannot much exceed 3°. The average value of the deviation of the waves from Nauen, 3600 miles away, was 3·4°. It was found that the waves from San Diego, although they passed overland for 2000 miles, were practically vertical. Observations were made to see whether the well-known shift in the apparent direction of a sending station at night as determined by a radio compass was accompanied by any corresponding phenomenon in the value of the deviation of the wave-front. Although the apparent direction of the station shifted at times by as much as 30°, no appreciable change in the deviation of the wave-front could be detected.

There are many cases in engineering in which intense loading pressures are inevitable; for example, knife-edges, the line-contact of gear-wheels, the contact pressure of the wheels of a locomotive on the rails, etc. The results of a long investigation on contact pressures and stresses are given in a paper read before the Institution of Mechanical Engineers on March 18 by Prof. E. G. Coker, K. C. Chakko, and M. S. Ahmed. It is not possible to do justice to this paper in a short note. The authors have determined the stress distribution in a number of cases, *e.g.* the distribution of stresses, over different bearing areas, of a rectangular block pressed against another flat surface of greater area by a load applied at the centre of the opposite face. Another matter investigated is the effect on the strength of tensile test-specimens of the minute indentations required for the attachment of extensometers and of the pressures produced by the extensometer grips. The latter case has been worked out completely, and diagrams giving the stress distribution are included in the paper. Prof. Dalby has abandoned the ordinary method of attaching his extensometer and uses special test-specimens having collars against which the mechanism of the extensometer presses lightly. The authors of the present paper have investigated the effect of the collars of the Dalby specimen, and find that there is ample justification for the use of this form of test-piece. The paper constitutes an extremely valuable record of the special methods of testing by means of polarised light with which Prof. Coker's name has long been associated.

We welcome the first number of *Photographic Abstracts*, for it fills a distinct gap in scientific literature. This is not the first attempt of the Royal Photographic Society to do work of this sort, but it is the first time that the scheme has been properly financed and arranged by an enthusiastic committee, assisted by a large staff of efficient abstractors. The abstracts are classified under eleven headings:—Colour photography; kinematography; manufacture of photographic materials; photographic appliances (cameras, etc.); photographic optics; photo-mechanical processes; radiography; applications of photography (astronomy, spectroscopy, photomicrography, etc.); sensitometry, actinometry, photometry; theory of photography; and photographic processes. This first number is a distinctly creditable production, although the publication committee apologises for not having attained the ideal that it had in mind.

Our knowledge concerning the chemical structure of catechin has been considerably increased by the series of papers recently published by Dr. Nierenstein and his collaborators, entitled respectively "The Constitution of Catechin, Parts I.–III.," and "Studies in the Chroman Series" (Journ. Chem. Soc., 1920, vol. cxvii., and 1921, vol. cxix.). A successful effort has been made to complete the work of Ryan and Walsh, who attempted to decide between the chroman structure proposed for catechin by A. G. Perkin and the coumaran structure suggested by Kostanecki and Lampe. Acacatechin and several derivatives have now been synthetically produced and proved to be identical with acacatechin and its derivatives obtained from natural sources. This work of Dr. Nierenstein proves that catechin is a chroman, but that the chroman formula suggested by Perkin requires some modification, as acacatechin is 2:4:6:3′:4′-pentahydroxy-3-phenylchroman.

The new list of announcements just issued by Messrs. Macmillan and Co., Ltd., contains the titles of many works of scientific interest. Among the books to be published between now and the end of June is one by Sir Clifford Allbutt entitled "Greek Medicine in Rome," being the Fitzpatrick lectures on the History of Medicine delivered at the Royal College of Physicians of London in 1909–10, with other historical essays. The essays will deal with Byzantine medicine; the Finlayson memorial lecture; Salerno; public medical service and the growth of hospitals; a chair of medicine in the fifteenth century; the rise of the experimental method in Oxford; medicine in 1800; medicine in the twentieth century; and Palissy, Bacon, and the revival of natural science. Another work in the list is "A Treatise on Probability," by J. M. Keynes, the author of "The Economic Consequences of the Peace." It will be in five parts on, respectively, fundamental ideas, fundamental theorems, induction and analogy, some philosophical applications of probability, and the foundations of statistical inference. In addition, there will be an extensive bibliography. Messrs. Macmillan will also publish "The Angami Nagas, with some Notes on Neighbouring Tribes," by J. H. Hutton. It will appear under the direction of the Assam Administration.

A WORK entitled "Pre-history," by M. C. Burkitt, is announced for publication in the autumn by the Cambridge University Press. It will be a study of early cultures in Europe and the Mediterranean basin, and contain a preface by the Abbé Breuil, with whom the author has collaborated in the study of prehistoric caves in France and Spain. Another autumn publication of the same publishers will be "A Manual of Seismology," by Dr. C. Davison, which will summarise present knowledge on the subject. It will be issued in the Cambridge Geological Series.

MESSRS. H. K. LEWIS AND CO., LTD., 136 Gower Street, W.C.1, have just published at 1*s*. net a Supplementary Catalogue for 1918–20 of their medical and scientific circulating library; also, gratis, their list of new books and new editions added to the library in January to March of the present year. The two catalogues should be in the hands of all who wish to be kept informed of the latest books in medical and general science.

Our Astronomical Column.

THE ACCELERATIONS OF THE SUN AND MOON.—The Journal of the British Astronomical Association for January contains an address by Dr. Harold Jeffreys on this subject. He starts by quoting the results obtained by Dr. J. K. Fotheringham from ancient observations of eclipses and other phenomena (Mon. Not. R.A.S., December, 1920), viz. 21·6″ for the moon and 3″ for the sun. These are the velocities gained per century per century; on the less logical system that gives the space gained in a century the figures are halved. Of the lunar figure 12·2″ is due to the diminution of eccentricity of the earth's orbit. The remaining 9·4″ for the moon and 3″ for the sun are ascribed to tidal friction, which diminishes the earth's rotational speed, thus lengthening the day. It would, at first sight, appear that the effect on the moon should be thirteen times that on the sun, this being the ratio of their mean motions. Since, however, the mutual action of moon and earth does not alter the moment of momentum of the system, a retardation of the earth's rotation is accompanied by a recession of the moon and the consequent lengthening of her period, which cancels a considerable part of the apparent acceleration due to the slower rotation. Dr. Jeffreys notes that the theoretical values of solar and lunar accelerations due to tidal friction are uncertain, and may be anywhere between 1 to 3 and 1 to 10. He then describes in detail the recent work of Major G. I. Taylor and himself (already described in this column) which determined the regions on the earth's surface where the friction is taking place; the Bering Sea is the largest contributor, but the action in the Irish Sea is quite sensible.

1646 SPECTROSCOPIC PARALLAXES.—The *Astrophysical Journal* for January last contains an important list of 1646 spectroscopic parallaxes by W. S. Adams, A. H. Joy, G. Strömberg, and Cora G. Burwell. The paper commences with a re-discussion of the spectral graduation tables in the light of the extensive series of trigonometrical parallaxes recently published, especially those at the Allegheny, McCormick, Yerkes, and Mount Wilson observatories. In the case of the Cepheid variables and giant M stars use has also been made of the parallactic motions, since these stars are, in the main, too remote to lay much stress on their trigonometrical parallaxes.

The new list includes revised values for 495 of the stars in the 1917 list. It is satisfactory that many A stars are now included in the list, which formerly did not extend beyond F. A few of the larger or more interesting results are quoted below, marked S, the trigonometrical results (T) being given for comparison:

OAN 4961, P.M. 0·53″, S 0·100″, no T; Aldebaran, S 0·096″, T 0·055″; Capella, S 0·076″, T 0·067″; Betelgeux, S 0·012″, T 0·021″; Castor (faint distant companion), S 0·091″, T 0·079″; Pollux, S 0·126″, T 0·064″; Boss 2199, S 0·110″, T 0·081″; Regulus (companion), S 0·052″, T 0·033″; Boss 3047, S 0·105″, T 0·235″ (only one determination); Arcturus, S 0·158″, T 0·075″; γ Serpentis, S 0·120″, T 0·063″; Antares, S 0·017″, T 0·029″; λ Sagittarii, S 0·115″, T 0·069″; β^1 Cygni, S 0·033″, T 0·000″; β Aquilæ, S 0·100″, T 0·076″; and Boss 5976, S 0·209″, T 0·172″.

For the peculiar variable or nova 7 : 1917 Serpentis the value of S is 0·003″, the absolute magnitude being 2·9.

Several large parallaxes have not been quoted, since they are practically replicas of the accepted values.

A CATALOGUE OF RADIAL VELOCITIES.—Many workers in stellar statistics must have felt the inconvenience of having to ransack the publications of several observatories in order to obtain complete details of known radial velocities. The need for a catalogue has at last been supplied by Mr. J. Voûte, who was for some time at the Cape Observatory determining stellar parallaxes. While he does not claim that his catalogue is absolutely complete, it includes all the stars, 2071 in number, for which radial velocities were given in publications that were accessible in the library of the Cape Observatory. It is arranged in a convenient form, giving R.A. and declination for 1900, magnitude, proper motion, spectral type, radial velocity, parallax, and galactic longitude and latitude.

The numbers of stars of each spectral type are:—Oe 6, B 310, A 358, F 257, G 309, K 517, M 153, R 11, and nebulæ and clusters 148. The largest + and − radial velocities for each type in km./sec. are:—B, +102, −38; A, +96, −170; F, +339, −325; G, +301, −242; K, +177, −132; and M, +98, −185. There appears to be a distinct maximum for types F and G.

The work was published at Weltevreden, Java, by Boekhandel, Visser, and Co.

A statistical study of the results by Prof. George Forbes was presented at the March meeting of the Royal Astronomical Society.